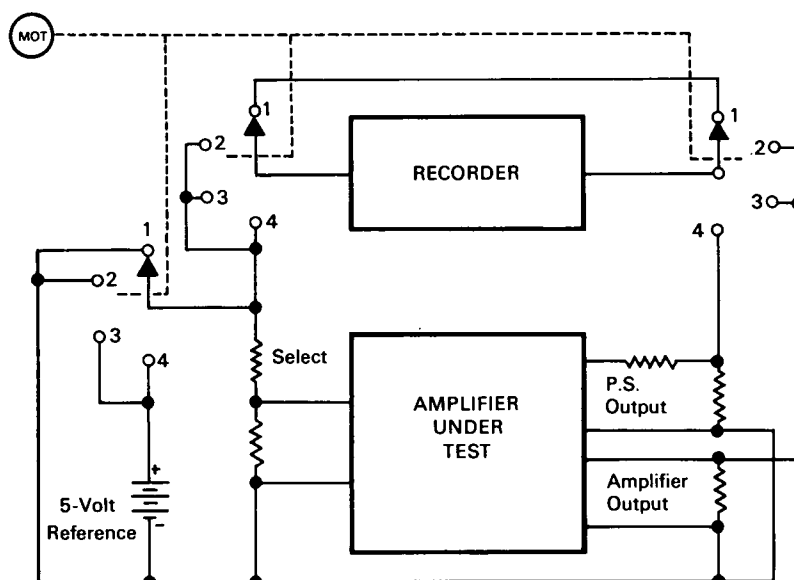


# NASA TECH BRIEF



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## Tester Periodically Registers DC Amplifier Characteristics



### The problem:

To provide a device for measuring automatically and periodically the gain and zero drift characteristics of a dc amplifier subjected to changes in environment. Standard industry tests measure the difference between the initial voltage and the voltage that is produced after a period of environmental change. Such methods erroneously assume that an amplifier that performs satisfactorily at the end of an environmental test period has also operated properly while being subjected to changing conditions.

### The solution:

A motor-driven switcher-recorder to periodically register zero drift and gain drift error signals.

### How it's done:

The motor drives the switches at a chosen rate, for example, one rpm. In the number 1 position, the recorder input terminals are shorted. This position will verify that the recorder zero has not changed. In the number 2 position, the amplifier has no input signal. The recorder will then register the amplifier zero drift. In the number 3 position, a 5-volt signal is applied to the voltage divider. The select resistor is calculated to divide the 5 volts by the same value as the amplifier gain. Therefore, the amplifier output voltage will be 5 volts. The recorder will register zero drift plus gain drift. In the number 4 position, one half of the 10-volt transducer excitation power supply is connected to one input terminal of the recorder while the

(continued overleaf)

other input terminal is connected to the reference 5 volts. The recorder will record one half of the power supply drift.

**Notes:**

1. Since several measurements are time-shared on a single recorder trace, a time coding method is needed. One method of coding is to have unequal percentages of time for one or more of the measurements. A second coding method is to slightly adjust the different measurement outputs so that the recorder will not read zero, but a known value near zero.

2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
Manned Spacecraft Center  
Houston, Texas, 77001  
Reference: B66-10148

**Patent status:**

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C., 20546.

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